We claim:

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1. A process heater comprising:

an oxidation reaction chamber, the oxidation reaction chamber having an inlet for oxidant, an outlet for combustion products, and a flow path between the inlet and the outlet;

a fuel conduit capable of transporting a fuel mixture to a plurality of fuel nozzles within the oxidation reaction chamber, each nozzle providing communication from within the fuel conduit to the oxidation chamber, with each nozzle along the flowpath between the inlet and the outlet;

a preheater in communication with the oxidation chamber inlet, the preheater capable of increasing the temperature of the oxidant to a temperature resulting in the combined oxidant and fuel from the fuel nozzle closest to the oxidation chamber inlet being greater than the autoignition temperature of the combined oxidant and fuel from the fuel nozzle closest to the oxidation chamber inlet; and

a process chamber in a heat exchange relationship to the oxidation reaction chamber wherein the heat transferred from the oxidation section does not causes the temperature of the mixture within the oxidation reaction chamber in the vicinity of each fuel nozzle to decrease below the autoignition temperature of the combined mixture in the oxidation chamber in the vicinity of that fuel nozzle.

2. The process heater of claim 1 further comprising a coke inhibitor injection system, the coke inhibitor system in fluid communication with the fuel supply conduit wherein an amount of coke inhibitor supplied can be effective to inhibit coke formation at fuel conduit operating temperatures.

3. The process heater of claim 1 wherein the fuel conduit is a tubular conduit essentially centrally located within the oxidation reaction chamber.

4. The process heater of claim 3 wherein the oxidation reaction chamber is essentially centrally located within the process chamber.

5. The process heater of claim 1 wherein the process chamber is a pyrolysis reaction chamber for the production of olefins.

6. The process heater of claim 1 wherein the process chamber is effective as a steam methane reforming reaction chamber.

7. The process heater of claim 1 wherein the process heater is a ethylbenzene dehydrogenation heater.

8. A method to provide heat to a process reaction, the method comprising the steps of:

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providing a fuel;

adding to the fuel a coke inhibition component in an amount effective to inhibit coke formation at heater operating temperatures;

providing a oxidation reaction chamber, the oxidation reaction chamber having an inlet for oxidant, an outlet for combustion products, and a flow path between the inlet and the outlet;

transporting a fuel mixture to a plurality of fuel nozzles within the oxidation reaction chamber, with each nozzle along the flowpath between the inlet and the outlet;

preheating the oxidant to a temperature resulting in the combined oxidant and fuel from the fuel nozzle closest to the oxidation chamber inlet being greater than the autoignition temperature of the combined oxidant and fuel from the fuel nozzle closest to the oxidation chamber inlet; and

a process chamber in a heat exchange relationship to the oxidation reaction chamber wherein the heat transferred from the oxidation section does not causes the temperature of the mixture within the oxidation reaction chamber in the vicinity of each fuel nozzle to decrease below the auto ignition temperature of the combined mixture in the oxidation chamber in the vicinity of that fuel nozzle.

9. The method of claim 8 wherein the process is a steam methane reforming process.

10. The method of claim 8 wherein the process is an pyrolysis reaction for production of olefins.

11. The method of claim 8 wherein the process is a ethylbenzene dehydrogenation process.

12. The method of claim 8 wherein the coke inhibition component is selected from the group consisting of carbon dioxide and steam.

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